

CONTRASTING THE RETHORIC OF ABSTRACTS¹

Martín J. FERNÁNDEZ ANTOLÍN

Universidad Europea Miguel de Cervantes

Belén LÓPEZ ARROYO y Rosario DE FELIPE BOTO

Instituto de Terminología Bilingüe y Traducción Especializada (ITBYTE). Universidad de Valladolid

1. INFORMATION DISTRIBUTION IN EXPERT-TO-EXPERT DISCOURSE

The growth of science and the use of the English Language as a medium of international communication have both increased extraordinarily in the last decades. Nowadays, English is the acknowledged language of information dissemination, which means that most of the best contributions in science are published in this language; hence, scientists are informed of the important advances in their fields in English. This statement suggests that experts have to come up with a set of rules to convey not only the proper information but also the form to illustrate and share their knowledge. It is well known that when experts in any given field discuss their subject among themselves they use a highly specialized language with highly specialized textual patterns assuming that both –writer and reader– share a common language and also that when certain linguistic patterns are used, they understand what is meant and what is implied. Certain terms and phraseological units in a given field have a unique and explicit meaning because experts have agreed to understand and use them as originally defined, assuming they have the same or similar level of expertise. As for the form, expert-to-expert communication develops specific macrotextual patterns in which knowledge is represented.

Therefore, we can state that communication between experts, which is one of the highest levels at which specialized languages may be used, develops its own rhetoric. Thus, experts in any given field discussing their subject are likely to use micro and macrolinguistic patterns that the ordinary speaker of a language will not understand, because specific meanings have already been assigned to them.

These linguistic patterns share both a basic meaning and a function between languages, but languages differ in the way information is distributed. In this sense, Rabadan (2002: 39) maintains that languages show preference for particular rhetoric strategies, observed in the distribution and frequency of certain structural, semantic and pragmatic rhetorical patterns. Accordingly, knowing and understanding these micro and macrolinguistic patterns of behavior seem to be essential not only for those experts whose native language is not English but also for translators and technical writers; if languages use different resources to express both meaning and form, translators, technical

¹ This paper has been written within the research project *Análisis contrastivo para la creación interlingüística de textos especializados*, (UEMC01A05) supported financially by Junta de Castilla y León (2005-2007).

writers and experts should be aware of them, so that their research and advances can be successfully reported and accepted by other members of the discourse community.

As we have suggested, this information distribution never occurs at random, otherwise experts would have not only to identify the relevant information but also to understand its pragmatic function. Therefore, every textual pattern allows experts to recognize the functions designated by the language from the way the microlinguistic component is distributed. If information distribution depends on the microlinguistic as well as on the macrolinguistic aspects, a Contrastive Analysis of the specific textual patterns of this specific communicative situation is needed in order to discover the differences between languages within those textual patterns in that communicative situation. Once the differences between the standards for those textual patterns in two different languages have been observed and classified, writers –experts, translators and technical writers- will be able to adapt their texts to the features of the English language within this communicative situation. In other words, and as Rabadan (2002: 41) states, in a particular communicative situation –expert-to-expert- with a particular communicative function –mainly informative-, meaning is partly shaped by some specific syntactical, grammatical or rhetorical features, constituting the concrete content to be conveyed (Bondarko 1984: 47). In other words, and according to Bondarko (1984: 2), our analysis describes the structure of expert-to-expert genres combining elements of different levels of analysis interacting on a semantic basis; thus, the system of language is seen through the semantic principle of their grouping, considering the correlation between central and peripheral components of the field, the relations among the components and the overlapping zones with other fields. In this regard, Bondarko (1984: 22) defines the *center* as the optimal concentration of all attributes combined in a given phenomenon, whereas the *periphery* consists of entities with a deficient number of such attributes with possible alteration of their intensity.

According to our previous statement, in a certain communicative situation, expert-to-expert in the present study, certain textual patterns are associated with certain forms and functions, taking into account the semantic field as the nuclear parameter of the analysis; that is, the occurrences of some textual patterns, forms, and functions will be *central* for a particular discourse community, while others will be considered as *peripheral*. Therefore, a Contrastive Analysis with a semanticfunctional approach of the textual patterns of expert-to-expert communication may be required for a Translation Studies comprehensive model of analysis.

2. THE GENRES IN EXPERT-TO-EXPERT COMMUNICATION

These textual patterns are known as genres. Swales (1990: 9) defines genres as classes of communicative events, which possess features of stability, name and recognition. According to Swales (1990: 9), the main criterion that turns a collection of communicative events into a genre is some shared set of communicative purposes. Genres are realized through registers; that is to say, genres constrain the ways in which field, tenor and mode can be combined in a particular discourse community. Genre constraints operate at the level of discourse structure, whereas registers impose constraints at the linguistic level of vocabulary and syntax. In other words, unlike registers, genres can only be realized in complete texts.

Exemplars of a genre exhibit patterns of similarity in terms of structure, style, content and intended audience. Therefore, the micro and macrolinguistic levels are comprised in the notion of genre and hence, by contrasting the rhetorical prototypical structure of the genres within Expert-to-Expert communication in English and Spanish, certain differences useful for translators and, accordingly, for successful communication, will be distinguished. As we have suggested, in order to meet this goal, we have to restrict our analysis to a semantic domain and register within specialized communication and to the genres it presents. The biomedical specialized language and cardiac arrhythmias are the register and the semantic domain chosen for our analysis and thus, broadly speaking, Expert-to-Expert communication in medicine shows different genres, among which we can point out case reports, research articles, and abstracts.

2.1 Abstracts

Our analysis will be focused on abstracts, because we consider that this genre shows best the features of specialized communication between experts (López Arroyo & Méndez Cendón 2005). We have chosen abstracts since they function as independent discourse as well as advance indicators of the content and structure of a longer text, the scientific Research Article (RA). Thus, abstracts can be defined as secondary genres, depending on the RAs from which they derive and show accurately and briefly the contents of the whole text. In this sense, Sager et al (1980: 318) affirm that specialized language abstracts were developed for additional economy in order to select information or concentrate on limited groups or purposes, further specializing the message for a subgroup of readers of the whole text.

Abstracts are often classified on the basis of content, purpose and structure as well as authorship; in this sense, Russell (1988: 4) distinguishes two standard types of abstracts, with two different functions: descriptive and informative abstracts. The former summarize the scope of the text, but do not contain extensive data and are not designed to replace the original text, whereas the latter give more detailed information on the content of the article, replacing, in some cases, the source text. Informative abstracts contain information on purpose, scope, methods, results and conclusions or recommendations and hence, they are written to accompany RAs. In other words, as informative abstracts can replace the source text, they have to be divided into the same sections as RAs, following what is known as “the IMRD pattern”.²

Journals have set policies and requirements regarding style, content, structure and so on; in fact, most rules for submitting papers to scientific journals explicitly require the IMRD pattern to be mentioned in the abstracts of the papers submitted for publication as well as its paragraph structure and the number of words.

Sometimes, informative abstracts are the only piece of writing that is read. This is because there are now so many research journals that experts do not have time to read all the RAs they contain. Thus, these abstracts have become a key to the content of the whole text. However, because several journals publish only abstracts as a source of quick information and orientation, in some

2 The IMRD pattern is the structure RAs and abstracts must adhere to, according to Journal requirements. IMRD stands for Introduction, Methods, Results and Discussion. The most striking characteristic is that each section contains a unique rhetorical structure, which differs from the others and readers of RAs and abstracts expect writers to adopt this structure.

cases, the informative abstract is the only piece of published writing. Therefore, a well-written abstract becomes increasingly important in directing readers to articles of potential value.

3. METHOD AND TOOLS: ENGLISH/SPANISH COMPARABLE AND PARALLEL CORPORA

Searching for and recognizing patterns of behavior in the English and the Spanish languages within abstracts in expert-to-expert discourse will allow us to obtain a favorite or prototypical external and internal information distribution for this genre; such structure would result from the semantic analysis of each of the sections and moves within an abstract that has been previously described. Once this favorite structure has been obtained for each subcorpus, contrasting them would lead us to establish and observe differences in their construction. These differences can be useful for suggesting strategies that may help translators and technical writers.

Since we intend to observe and classify micro and macrolinguistic differences in the construction of biomedical abstracts in English and Spanish, our methodology presents a parallel structure: it is divided into two main frames, a microlinguistic and a macrolinguistic analysis.

As far as the *microlinguistic aspect* is concerned, we will focus on the semantic aspects within biomedical expert-to-expert discourse as a means of achieving textual cohesion. To this end, considering the same situational meaning –genres associated with a communicative situation– we will observe the referential meaning of the terms integrating the abstracts in order to look for the organizational meaning (Larson 1984). The field under study is cardiac arrhythmias and, eventually, the function of the genres is informative, since experts want to share their advances and knowledge in the field with other members of the discourse community. With respect to the referential meaning, the analysis of the types of terms and the relations they establish among them will lead us to the organizational meaning, or the relations the terms establish in the abstract. To sum up, we consider lexical cohesion a resource to give functional meaning to the genres in a discourse community, since meanings cannot be read from the text but into the text, as Seidlhofer and Widdowson (1999: 210) state.

Lexical cohesion will be discovered by means of the following three parameters: prominence, substitution and reference. The concepts of prominence and substitution will assume a central position in our methodology, since they establish a direct relationship with the analysis of terminology; on the other hand, reference will only be considered whenever it participates in lexical chains made up of more than one element.

Regarding the *macrolinguistic aspect*, the study of conjunction in this genre bridges the micro and macrolinguistic aspects. By means of conjunction, lexical cohesion comes to light, since the logical and the syntactic aspects are linked; therefore, textual coherence and cohesion are thus achieved.

Eventually, our last step in this methodology is designed to provide understanding of the consequences in the use of certain terms in the abstract; particularly, we consider that the analysis of thematization gives us a method to observe predication as a resource to add information in the abstract. Lexical chains will occur not only on a particular scale but also in a specific position

within the text and, hence, the functional value of the abstract, as a specific genre within the discourse community, will be complied with.

When analyzing conjunction, we consider the sentence the minimal unit to establish this type of relationship. Conjunction will link lexical chains whenever, at least, a cardiology specific term can be found in each of the sentences. On the other hand, completed lexical chains can be introduced through conjunctions so that textual cohesion and coherence will be achieved in the abstract. Dealing with thematization, three methods of including new information will be examined: lineal, constant and rhematic thematization.³

3.1 English/Spanish Comparable and Parallel Corpora

Our methodology is not used in order to observe only meaning but also the use and function of the terms in abstracts, because, as Baker (1993: 237) states, correspondence in meaning amounts to correspondence in use. Therefore, our methodology will be applied using a computerized corpus, which allows us to describe real utterances within a communicative situation.

We built a specific purpose corpus, according to pragmatic criteria. In selecting our texts, we considered the representativity and availability of the abstracts; in other words and according to Nwogu (1997: 121), the abstracts were chosen to ensure a representative sample of the language of members of the discourse community. Availability, on the other hand, refers to the ease with which abstracts constituting the corpus can be obtained.

Finally, our corpus⁴ is described as bilingual and synchronic; first, because it is based on English and Spanish abstracts and second, because the sample texts were chosen by publication date.

But not only is our corpus characterized by these features, it is also divided in two subcorpora: a comparable subcorpus, made up of fifty abstracts originally written in English and fifty abstracts in Spanish and a translation subcorpus, made up of fifty abstracts translated into Spanish and fifty into English; we have to mention that this translation subcorpus is a parallel subcorpus, in other words, the sample texts included in this subcorpus are not translations from the samples included in the comparable subcorpus, but texts translated into Spanish and into English. The decision to build a comparable and a translation corpus lies in the fact that we are interested in the acceptability of abstracts by the other language discourse community, although we are aware that samples translated into Spanish will not show the same importance.

In order to compile the English comparable corpus we started our search on the Internet; and in this sense, several Internet sites contain links to scientific community databases such as MEDLINE, MEDAIDS, PUBMED... However, as we are interested only in those abstracts dealing

3 Lineal thematization consists of adding new information by means of terminology, and in this sense the textual position of cardiology specific terms will be considered for this type of thematization. On the other hand, constant thematization comprises lexical chains showing a meaning relationship with the main chain. Finally, rhematic thematization is built on the rhematic information that is available from the previous given information.

4 The classification of corpora we are using in the present study has been taken from the study of Bravo Gozalo and Fernández Nistal (1998) and Rabadán Álvarez and Fernández Nistal (2002: 45-59).

with cardiac arrhythmias, we restricted our search to Medscape MEDLINE, a robust search engine which contains a subset of 269 clinical English-language journals selected as a clinician's library. This search engine selects abstracts and RAs depending on their scientific validity, importance, originality and contribution to the medical specialty. Medscape selection criteria could be called into question; nevertheless, each title included in it has to meet one of the following criteria: expert opinion of pre-eminent clinicians and researchers (...); named as one of the nine English-language international general medical journals whose full-time editors are members of the International Committee of Medical Journal Editors; inclusion on a 1994 internal JAMA (Journal of American Medical Association) journal list; a journal impact factor greater than 2 as ranked by the Institute for Scientific Information's Journal Citation Reports; and high readership scores determined by PERQ (Pharmaceutical and Health Care –related promotion research).⁵

However, the next criteria we used was the journal impact factor within cardiology. In this sense, the Institute for Scientific Information (ISI) ranks journals according to their impact in the scientific community and this is the main criteria used for our corpus compilation⁶. Only those cardiac arrhythmias abstracts published in the fifteen journals with greater impact were selected⁷.

Regarding the Spanish comparable corpus, international impact could not be used, because ISI does not include any Spanish cardiology journal within its impact ranking; however, Medscape includes two Spanish cardiology journals in their selection and, consequently, we took the abstracts from those two journals: *Revista Española de Cardiología* and *Medicina Clínica*.

The Translation into English and into Spanish corpora were assembled from samples taken from MEDLINE Medscape using the same method as the compilation of the English comparable corpus.

4. ENGLISH/SPANISH RHETORICAL STRUCTURE OF ABSTRACTS

Studies relating to the rhetorical structures of RAs and abstracts have not considered interlingual comparative studies of these genres, thus revealing their internal differences; in other words, they have not included translation as one of their aims or implications. Nevertheless, they can be used as a starting point to describe the differences in the rhetorical structure of RAs and abstracts between English and Spanish. In the present corpus-based study, we will only focus on the abstracts of RAs, assuming Swales' study (1990: 2004) as a starting point. Swales (1990) establishes that RAs and abstracts can be divided into different moves.⁸ Each move contains several constituent elements, known as steps, combining in identifiable ways and some of them compulsory for the construction of acceptable abstracts by the discourse community (Nwogu 1997: 122).

5 Data obtained from <http://www.medscape.com>

6 For impact classification see <http://isinet.com>

7 According to ISI, the journals classified with the highest impact in cardiology are: *Circulation*, *Circulation Research*, *New England Journal of Medicine (NEJM)*, *Journal of the American College of Cardiology*, *The Lancet*, *Papers from the National Academy of Sciences (PNAS)*, *Nature*, *Science*, *American Journal of Cardiology*, *Journal of American Medical Association (JAMA)*, *Arteriosclerosis Thrombolysis and Vascular Biology* (Official Journal of the American Heart Association), *Annals of Thoracic Surgery* and *Pacing Clinical Electrophysiology*.

8 A move is a text segment made up of a bundle of linguistic features which give the segment a uniform orientation and signal the content of discourse in it (Nwogu 1997: 122).

4.1 Introductions

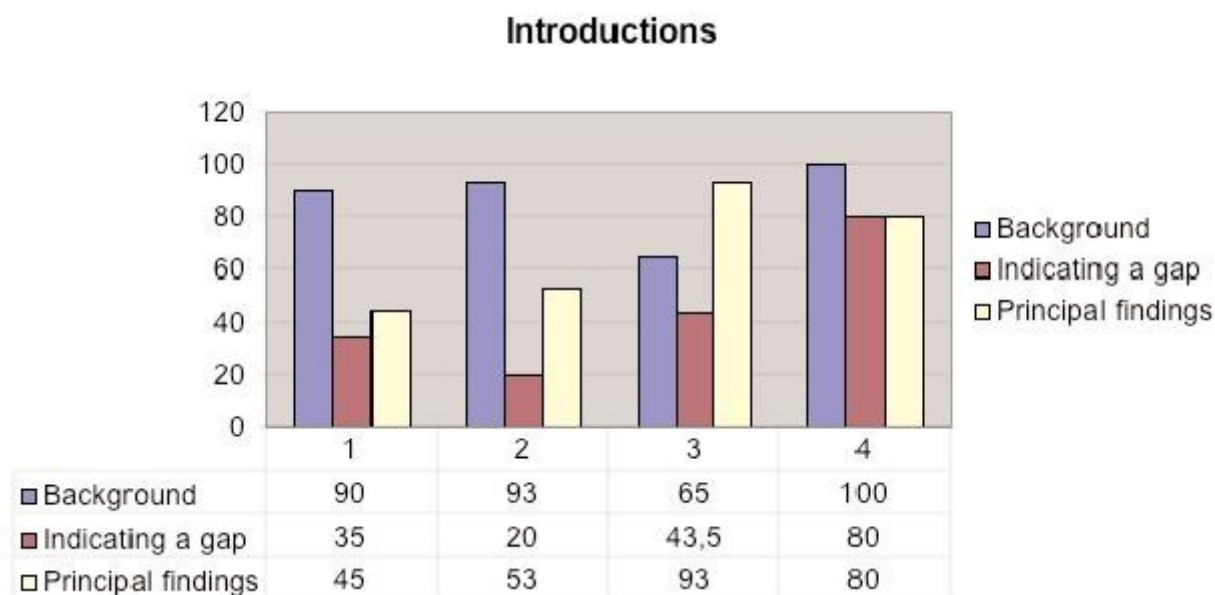
Informative abstracts, as derived forms of RAs that maintain the same external structure (the IMRD pattern), should observe the same rhetorical structure as RAs. What differentiates them is the amount of information they include; as mentioned before, editorial committees restrict abstracts to 250/300 words, and, consequently, authors must select the information they want to include. Swales (1990: 141) states that the Introduction of RAs can be divided into three moves and table 1 summarizes the semantic distribution in moves and steps for abstracts Introductions.

Swales's moves and steps for RA Introductions		Moves for Abstracts
<i>Establishment of Territory</i>	<i>Claiming Centrality</i> <i>Making Topic Generalizations</i> <i>Review of Previous Research</i>	<i>Background Information</i>
<i>Establishing a Niche</i>	<i>Counter Claiming</i> <i>Indicating a Gap</i> <i>Question Raising</i> <i>Continuing a Tradition</i>	<i>Indicating a Gap</i>
<i>Occupying the niche</i>	<i>Outlining Purposes</i> <i>Announcing Present Research</i> <i>Announcing principal findings</i> <i>Indicating RA Structure</i>	<i>Principal Findings</i>

Table 1. Comparison of external structure of RAs and abstracts.

A comparison of the first move of RAs and abstracts shows that, because of the concise nature of abstracts, only one of the steps within this first move is included. This step is that of *Making Topic Generalization* and authors tend to present this step because it involves a more neutral statement than the other two. Regarding the second move, *Establishing a Niche* the existence of a sentence in which a gap in the field is pointed out can be observed in abstracts. Authors consider this aspect to be very relevant because they need to justify their research in the next move and therefore, the inclusion of this second move in the abstract is a way of linking moves. Eventually, the third move contains, generally speaking, at least a step in which authors want to highlight their research as well as their findings. So, they stress both their research and their contribution to the scientific community. To sum up, Introductions of RA abstracts in cardiology contain three moves and, at least, a step within each move; we call the first move and step *Background*, the second *Indicating a Gap* and the third *Principal Findings*.

We carried out this analysis in our subcorpus and the results are summarized in the following graph:



Graph 1. Occurrences for informative abstracts in the Introduction section (%). Numbers 1 to 4 correspond to English comparable, Spanish comparable, Translation into English and Translation into Spanish corpora respectively.

Our analysis shows that the move indicating a gap is not very popular among the Spanish medical community in comparison to the English practice. In other words, Spanish authors prefer highlighting the principal findings of their own study rather than indicating other studies' failures.

However, when we carried out the analysis in the Spanish comparable subcorpus, a very striking feature in the rhetorical structure of the sample texts was found: 10% of the RA abstracts in this subcorpus show a singular rhetorical distribution, which seems to be closer to that for descriptive rather than for informative abstracts. So to speak, the typical rhetorical structure of this group of descriptive abstracts only summarizes purpose and methodology and is not designed to replace the source text. Nevertheless, those abstracts were not discarded in our study, because they are real samples of scientific communication in the Spanish language. This significant distribution becomes the first difference found in our analysis of the comparable corpus: although editorial committees advise authors to construct informative abstracts and although readers expect this type of abstracts to be part of RAs, certain Spanish scientific writers do not follow this norm and the consequences it may lead to be disastrous for the acceptability of these abstracts by the international scientific discourse community.

Regarding the descriptive abstract group, certain aspects must be mentioned: some of them do not follow a common rhetorical structure, while others (9%) include the first two moves – Background and Indicating a Gap –, that is, 9% of the descriptive abstracts do not include the Principal Findings move.

On the other hand the analysis of the Translation subcorpus also shows outstanding features to be mentioned; those sample texts in the *translation into English* subcorpus follow the same pattern as the Spanish comparable subcorpus, which means that informative and descriptive abstracts

(20%) can be found in this subcorpus. As far as the descriptive abstracts group is concerned, only 5% of the descriptive abstracts show the first and second move.

With respect to the results obtained in the analysis of this subcorpus, two features need to be mentioned; first, the occurrence of descriptive abstracts in this subcorpus seems to indicate that Spanish scientific writers do not take into account the typical or favorite rhetorical structure for this genre in the English language. This feature could make not only acceptability but also communication difficult, since native English speaking experts do not expect this structure to be part of RAs. In addition, sometimes, scientists could see their research rejected for publication, not because of the content but for the form in which they present their findings.

Descriptive abstracts			
Corpora:		Spanish Comparable	Translation into English
Occurrences within the subcorpus		10%	20%
Moves within descriptive abstracts	<i>Background</i>	9%	5%
	<i>Indicating a Gap</i>		

Table 2. Occurrences for descriptive abstracts in the Introduction sections.

As for the informative abstracts, we would like to point out that the structure they show seems to be closer to that favored by the English language, since the percentages found are similar.

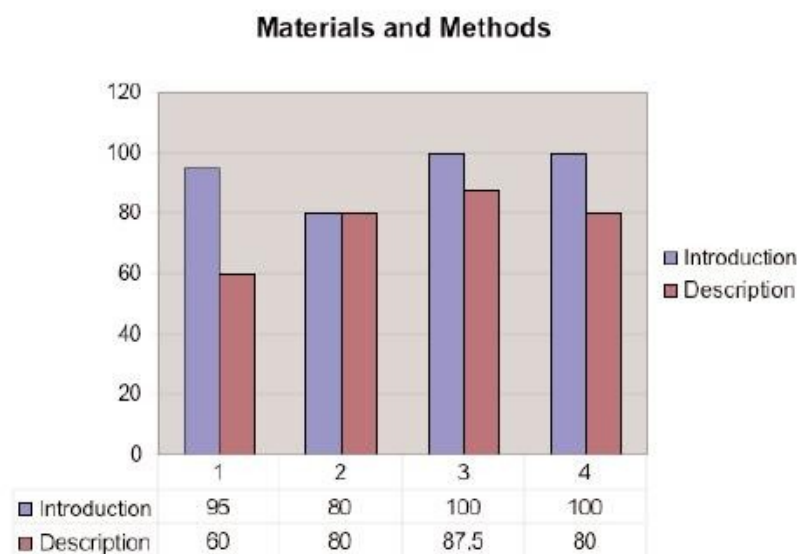
The results for the Translation into Spanish subcorpus seem to illustrate that the information transmitted in these abstracts is more exhaustive than in those written originally in Spanish.

4.2 Methods

Although Swales' study (1990) does not contain the rhetorical structure for the other sections included in a RA, we have decided to analyze our corpus in order to see whether a rhetorical structure could be found in the other sections: Moves, Results and Conclusion. In this sense, certain similarities were discovered in the construction of the second section –Methods– of abstracts. These similarities revealed that this section is mainly divided into two moves, which we called *Introduction* and *Description*.

Graph 2 summarizes the results found in our corpus. In this regard, we would like to mention that although descriptive abstracts within the Spanish comparable subcorpus (9%) show these two moves in this section, the rhetorical structure seems to be more neutral and vague than in informative abstracts.

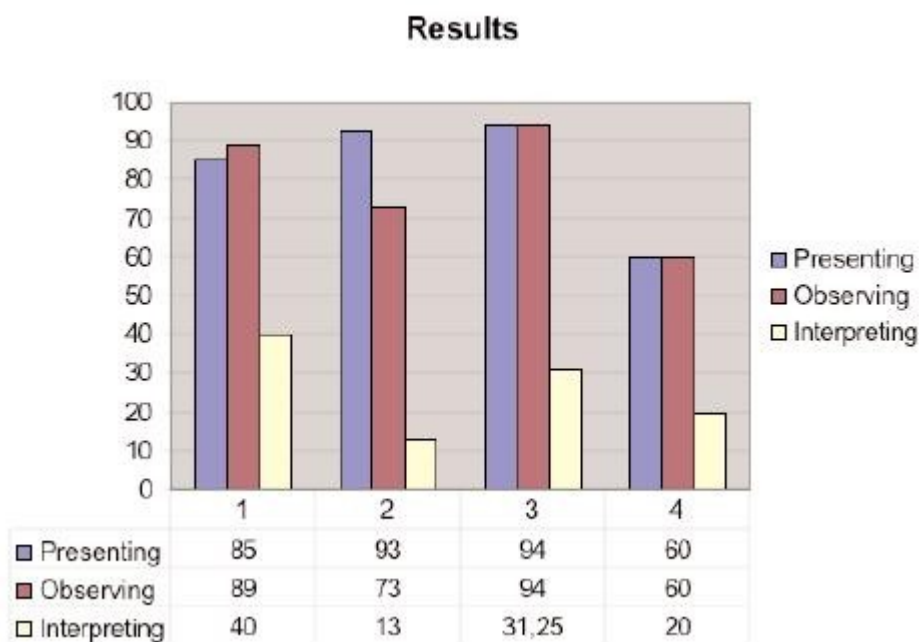
As we have mentioned, the *Translation into English* subcorpus shows that 20% of the samples within this subcorpus are descriptive abstracts, and these abstracts do not show any rhetorical structure at all. Finally, the analysis of this second section in the *translation into Spanish* subcorpus illustrates the same trend as in the previous section; that is, the information included in these abstracts seems to be more detailed than that included in the Spanish comparable corpus.



Graph 2. Occurrences for informative abstracts in the Materials and Methods section (%). Numbers 1 to 4 correspond to English comparable, Spanish comparable, Translation into English and Translation into Spanish corpora respectively.

4.3 Results

Many studies illustrate that the Results sections of RAs are extremely diverse in their rhetorical structure. As Williams (1999: 348) states, whereas some Results sections are short and undivided, others are divided into several subsections. This feature is observed in the abstract structure as well, although our analysis shows that Results sections in abstracts can be divided into three different moves: *Presenting*, *Observing*, and *Interpreting Results*. The division into moves can be considered a consequence of the concise nature of abstracts; in other words, despite the diversity in the structure Results Sections show in RAs, this section seems to be far more organized in abstracts, due to their function as advance indicators of the content of a longer text. However, abstracts function as well as derived texts and, hence, the analysis of our corpus will illustrate some variation in the rhetorical structure of this section.



Graph 3. Occurrences for informative abstracts for the Results section (%). Numbers 1 to 4 correspond to English comparable, Spanish comparable, Translation into English and Translation into Spanish corpora respectively.

The occurrence of the first two moves in the comparable subcorpora seems to be significant in terms of rhetorical structure, while the percentage for the last move shows a certain degree of variation. On the other hand, as we have already mentioned, the Spanish comparable subcorpus contains 9% of descriptive abstracts and the analysis of their rhetorical structure does not show any kind of significant subdivision. The Results section for these abstracts seems to be focused on the understanding and interpreting of the data obtained, which implies, in some cases, a lack of the last move.

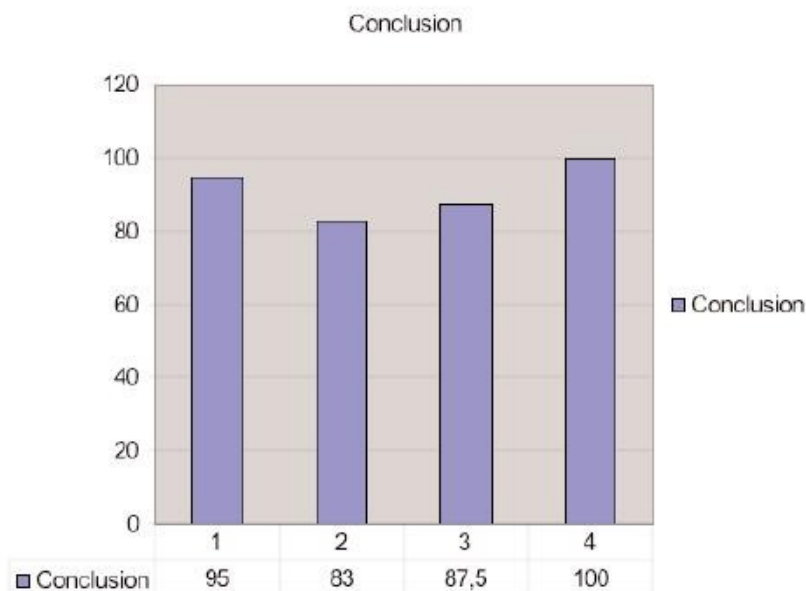
The *Translation into Spanish* subcorpus presents informative and descriptive abstracts and the rhetorical structure of informative abstracts with respect to the Results section can be found in table 2. Secondly, descriptive abstracts do not contain any significant subdivision, a situation similar to the analysis of the Spanish comparable subcorpus for these abstracts and this section.

4.4 Conclusion

The conclusions of the study and some recommendations are explained in the Conclusions section and, no significant subdivision has been found in our analysis for this section. According to editorial committees, this section is compulsory for the construction of RA abstracts; nevertheless, many authors decide not to include it in their abstracts.

Surprisingly, 100% of descriptive abstracts in the *translation into English* subcorpus contain the Conclusions section. This data is striking considering the parallelism observed in the results of the analysis for the other three sections between the Spanish comparable and the *translation into*

English subcorpora. In other words, although the first three sections of descriptive abstracts written originally in Spanish and translated into English show a certain degree of similarity in terms of the structure, the section of Conclusions does not follow this pattern, but it includes the opposite tendency.



Graph 4. Distribution of the Conclusion section in informative abstracts (%). Numbers 1 to 4 correspond to English comparable, Spanish comparable, Translation into English and Translation into Spanish corpora respectively.

5. PROTOTYPICAL STRUCTURE FOR ABSTRACTS: DESCRIPTION

Our next step will be to focus on the terminology used and on the semantic relationships those terms maintain within the syntactic and textual structure of the abstract. Once this step is developed, the organizational meaning for every section and move will be examined in order to observe the nature of the lexical chains formed in those texts. Eventually, by means of conjunction, the relations between lexical chains will be achieved.

However, we will focus only on those specific lexical chains for our semantic domain, *cardiac arrhythmias*; table 3 illustrates the conceptual subdomains under analysis in the present study:

Cardiac arrhythmias	
CONCEPTUAL STRUCTURE	NOMENCLATURE FOR OUR STUDY
Disturbances on the impulse formation	Cardiac general disorder
Abnormal Conduction	Cardiac disorder

Therapy	Therapy
Protocol of the therapy	Protocol of the therapy

Table 3. Conceptual structure and nomenclature used in our study.

5.1 The English Comparable Subcorpus

Table 4 summarizes the distribution of each of the subdomains under study according to our parameters. Columns two and three show the move and, more precisely, the step in which each of the subdomains starts lexical chains; columns four to six show the semantic preferences for those occurrences.

Subdomains	Move	Step	Substitution	Reference	Prominence
Cardiac General Disorder	Introduction	Background (76%) Indicating a gap (28%)	Synonymy: abbreviations variation of the terminological unit		
Cardiac Disorder	Methods	Description (73%)	Minimal variation Synonymy: abbreviations, acronyms	Comparison	Forefronting Repetition Passive voice Expentancy chains
Protocol of the Therapy	Results	Observing (55%)	Minimal variation Synonymy: abbreviations, acronyms	Comparison	Forefronting Repetition Passive voice Expentancy chains
Therapy	Introduction	Indicating a gap (57%)	Subtechnical terms		

Table 4. Behaviour of the subdomains in the English comparable subcorpus: Rhetorical and Semantic.

5.2 The Spanish Comparable Subcorpus

Subdomains	Move	Step	Substitution	Reference	Prominence
Cardiac General Disorder	Results Methods	Presenting (64%) Introduction (40%)	Synonymy: subtechnical terms, hyponymy		Repetition Passive voice Forefronting Expentancy chains

Cardiac Disorder	Results	Observing (63%)	Meronymy Synonymy: acronyms definition	Comparison	Repetition Passive voice Forefronting
	Conclusion	(64%)			
Protocol of the Therapy	Method	Introduction (58%)	Synonymy: eponym, subtechnical terms	Comparison	Passive voice
Therapy	Method	Description (50%)	Synonymy abbreviation, subtechnical terms	Comparison	
	Results	Presenting (50%)			

Table 5. Behavior of the subdomains in informative abstracts of the Spanish comparable subcorpus: Rhetorical and Semantic.

5.3 The Translation into English Subcorpus

Subdomains	Move	Step	Substitution	Reference	Prominence
Cardiac General Disorder	Introduction	Background (100%)	Synonymy: hyponymy definition, abbreviation		Expectancy chains Repetition Passive voice
	Methods	Introduction (93,3%)			
Cardiac Disorder	Introduction	Principal findings (73,3%)	Meronymy Synonymy: definition abbreviation		Repetition
	Methods	Introduction (66,6%)			
Protocol of the Therapy	Results	Presenting (57.14%)	Synonymy: hyponymy Abbreviation	Comparison	Passive voice Forefronting
	Conclusion	(66%)			
Therapy	Introduction	Indicating a gap (50%)	Synonymy subtechnical terms abbreviation		

Table 6. Behavior of the subdomains in informative abstracts of the Translation into English subcorpus: Rhetorical and Semantic

5.4 The Translation into Spanish Subcorpus

Subdomains	Move	Step	Substitution	Reference	Prominence
Cardiac General Disorder	Introduction	Background (100%)	Synonymy: hyperonymy abbreviation	Comparison	Forefronting Passive voice
	Results	Observing (100%)			
Cardiac Disorder	Introduction	Principal findings (60%)	Synonymy: hyperonymy Abbreviation		
Protocol of the Therapy	Introduction	Principal findings (80%)	Synonymy: hyponymy abbreviation		Passive voice
	Results	Interpreting (100%)			
Therapy	Methods	Introduction (60%)			Repetition

Table 7. Behavior of the subdomains in abstracts of the Translation into Spanish subcorpus: Rhetorical and Semantic

6. JUXTAPOSITION AND CONTRAST OF DESCRIPTIVE DATA

Corpora	English Comparable	Spanish Comparable	Translated into English	Translated into Spanish
Moves	Methods (M) Results (R)	Introduction (I) Methods (M)	Introduction (I) Methods (M)	Introduction (I) Methods (M)
Steps	Description (M) Observing (R)	Background (I) Introducing (M)	Background (I) Introducing (M)	Background (I) Introducing (M)
Subdomain	Cardiac disorder	Cardiac disorder general	Cardiac disorder general	Cardiac disorder general
	Protocol of the therapy	Therapy	Protocol of the therapy	Protocol of the therapy

Table 8. Summary of relevant moves, steps and subdomains within the corpus.

6.1. Juxtaposition and Contrast of the Comparable subcorpus

The first difference observed is based on the nature of RA abstracts; thus, while the Spanish comparable subcorpus includes descriptive and informative abstracts, the English comparable subcorpus only includes informative ones. In other words, Spanish authors find both types of

abstracts, informative and descriptive, as adequate textual instances for their RAs, whereas English scientists consider only the former type to be an appropriate textual pattern for their RAs.

Regarding informative abstracts, juxtaposition of both comparable subcorpora shows that the relevance given to subdomains seems to be not only different but opposite. Therefore, new information –represented by the protocol of the therapy subdomain- rules the relations with other subdomains in the English comparable subcorpus, whereas the cardiac general disorder subdomain or given information for the experts in the field assumes this function in the Spanish comparable subcorpus. In other words, abstracts in the English comparable subcorpus stress the results of the study while authors of Spanish abstracts emphasize the aim of the study.

The relations between terms within each of the subcorpora are different: from a lexical or terminological point of view, English samples refer to the concepts of the subdomains under study by means of specific terms; thus, hyponyms are repeated through the sample or substituted by acronyms as it can be observed in the following example:

The role of programmed *ventricular stimulation (VSTIM)* for risk stratification in congenital heart disease is unclear. We analyzed the results of *VSTIM* in selected congenital heart disease survivors at a single center to determine whether it improved the ability to predict a serious outcome. METHODS AND RESULTS: Between July 1985 and September 1996, 140 primary *VSTIM* studies were performed on 130 patients (median age 18.1 years, range 0 to 51).

On the other hand, the Spanish comparable abstracts show a preference for variation. The terms referring to the concepts are substituted by acronyms, hyperonyms, subtechnical terms, definitions or even by terms belonging to other communicative situations. Certain terms are identified as belonging to a particular subdomain and hence, the implicatures between the participants seem to be diminished:

La *fibrilación auricular* es la *arritmia* más frecuente y suele ocasionar síntomas que requieren tratamiento. Los fármacos antiarrítmicos constituyen el arma terapéutica de primera línea en los pacientes con *esta cardiopatía*, pero su uso encierra una serie de riesgos potenciales, junto a una limitada eficacia, que obliga a ajustar sus indicaciones.

Considering the communicative setting, the inclusion of certain definitions seems not to be appropriate, interrupting or creating misunderstanding of the communication among the participants. These data are verified with the analysis of conjunction, since different types of relationships are expressed in Results sections of the English comparable subcorpus and a variety of conjunct relations can be observed in the Introduction sections of the Spanish comparable subcorpus.

This difference in the relevance given to certain subdomains has an effect on the distribution observed among terms for every section, hence, contributing to a particular information scattering which will be exclusive of each of those sections. Although sample texts for both subcorpora show certain similarities in relation to their subdivision in moves, the importance given to certain moves gives rise to some differences which influence their organization and distribution. Regarding the

occurrence of moves within sections, relevant differences should be pointed out; in the Introductions, Spanish authors tend not to include the move indicating a gap as much as English authors (35% vs. 20%) and on the other hand, Spanish authors tend to highlight the principal findings within the Introduction more than English authors (53% vs. 45%). This strategy seems to show that Spanish authors give more prominence to their own aims in the study, while English authors tend to compare their study with other previously developed in their research area before stating the methods and results.

By comparing the occurrence of the moves within the Results sections, it can be observed that the move interpreting the results can be considered to be a favorite structure in the English subcorpus (40%), while it is a peripheral structure in the Spanish subcorpus (13%). In this sense, we can state that Spanish authors consider more relevant other aspects of their study than the interpreting of the results and, thus, they do not include this information in the abstract.

According to our analysis, the Methods and Results sections are the most relevant sections in the sample texts for the English comparable subcorpus, whereas Introductions and Methods hold this position in the Spanish comparable subcorpus. Consequently, Spanish authors seem to focus their attention on information related to arrhythmias, which is, given information for the readers, and English authors stress the results of their study, in other words, new information.

Therefore, the differences in the construction of abstracts between these two languages are not as important in relation to their subdivision into moves as in the information distribution within the moves. The results of the comparison show that the starting point abstracts assume is not only different, but opposite in the two languages under study.

6.2 Juxtaposition and Contrast of the English comparable and the *Translation into English* subcorpora

Sample texts in the *translation into English* subcorpus present a different structure to those written originally in English. First, as secondary genres, abstracts are derived texts of RAs which are adequate and accepted by the discourse community originally targeted; however, when translated into English, abstracts should adapt their features to those typical for the English language in that communicative situation. Thus, translated abstracts have to be adequate not only to their primary texts but also to the target discourse community.

In this sense, 66% of the translated abstracts are longer than editorial committees advise, whereas only 36% of the samples in the comparable subcorpus are longer than 250 words. When analyzing the subdivision into moves of the samples in the *translation into English* subcorpus, descriptive abstracts were found –12% of the abstracts; this occurrence implies not only a difference with the abstracts of the English comparable subcorpus but also a similarity with those of the Spanish comparable subcorpus. If we accept the English language to be *the* language for scientific communication, we have to accept its text patterns as well; hence, every diverted element –as the occurrence of descriptive abstracts may be– will be rejected by the target discourse community.

On the other hand, informative abstracts in the *translation into English* subcorpus present a higher trend towards a subdivision in moves, which can be understood as an inclination to specify the information transmitted in it. As we have previously mentioned, this feature could modify the concise nature of abstracts, interfering with, once again, their acceptability in the target community.

The comparison of the subdomain distribution between these two subcorpora illustrates that sample texts in the translation subcorpus tend to emphasize both the cardiac general disorder and the protocol of the therapy subdomains; in other words, those subdomains stressed in the Spanish and in the English comparable subcorpora respectively. In the translation subcorpus, the relevance to the cardiac general disorder subdomain takes place in the Introduction sections and the protocol of the therapy subdomain is given importance in the Introduction and in the Methods sections. Thus, we can conclude that the Introduction and the Methods sections present a nuclear position in translated abstracts. Regarding term relations, *translated into English* samples show the same trend in terms of synonymous relations, such as the substitution of certain terms by definitions, subtechnical terms, etc.

These data confirm that translated abstracts share some features of the source and target discourse communities, interfering communication and acceptability by the latter since readers do not recognize certain patterns of behavior as typical for the communicative situation.

6.3 Juxtaposition and Contrast of the Spanish comparable and the *Translation into Spanish* subcorpora

Sample texts included in this translation subcorpus tend to specify particular items, a feature observed in the length and occurrence of moves within the abstracts. Regarding the distribution of the subdomains, translated texts give relevance to the cardiac general disorder and the protocol of the therapy subdomains; it can be noticed that translation subcorpora stress the same subdomains, no matter the language those abstracts have been translated into. The moves in which these subdomains are stressed are the Introduction and the Methods sections as well.

7. CONCLUSION

The comparison of the favorite structures reveals certain similarities and differences in the construction of abstracts; differences have to be pointed out to reach a better understanding of this type of specialized communication.

Our analysis shows that central strategies for the comparable subcorpora are not only different but also opposite in the two genres under study. Spanish and English audiences in the medical discourse community seem to have an opposite tradition in the composition of abstracts, a fact that has to be considered when teaching composition strategies in both discourse communities.

On the other hand, the analysis of the *Translation into English abstracts* has shown that these samples follow, to a certain extent, the proper conventions for the Spanish discourse community of

experts. The variation in terminological units by means of definitions, the inclusion of terms belonging to other communicative settings, the importance to given information and the inclusion of descriptive abstracts resemble the strategies observed in the Spanish comparable subcorpus. These strategies not being proper in the English community affect acceptability, because the audience does not recognize those patterns of behavior as proper for this type of genre within this type of communication.

The differences observed in the behavior of abstracts have to be taken into consideration in specialized communication, since the language for scientific information dissemination is the English language. Technical writers, experts and translators should adapt their abstracts to the features of the English language for this communicative setting; otherwise, the target discourse community can reject those texts because they do not comply with the expectations readers have.

We think that contrastive studies from the theoretical angle of text linguistics are very helpful for subject specialists, translators and professional abstractors. We hope to have proved that interlingual comparative studies of abstracts reveal similarities inside this genre, but also, in spite of its seemingly uniform behaviour, a number of language-specific differences that has to be taken into consideration for translation related purposes.

REFERENCES

- BAKER, Mona (1993). "Corpus linguistics and Translation Studies. Implications and applications", in Baker, Mona & Tognini Bonelli, Elena, eds. *Text and Technology. In Honour of John Sinclair*. Antwerp: John Benjamins, 233-250.
- BRAVO Gozalo, José Ma & FERNÁNDEZ NISTAL, Purificación (1998). "La lingüística del corpus, las nuevas tecnologías de la información y los Estudios de Traducción en la década de 1990", in Fernández Nistal, Purificación y Bravo Gozalo, José M^a eds. *Traducción: orientaciones lingüísticas y culturales*. Valladolid: Universidad de Valladolid, 205-257.
- BONDARKO, Alexander (1984). *Functional Grammar. A Field Approach*. Antwerp: John Benjamins.
- CHESTERMAN, Andrew (1998). *Contrastive Functional Analysis*. Antwerp: John Benjamins.
- CREMMINS, E.T (1982). *The Art of Abstracting*. Philadelphia: ISI Press.
- GHADESSY, Mohsen (1999). "Thematic organization in academic article abstracts", in *Estudios ingleses de la universidad complutense* 7, 141-161.
- GLÄSER, Rosemary (1995). "The LSP genre abstract revisited" in Gläser, Rosemary ed. *Linguistic Features and Genre Profiles of Scientific English*. Frankfurt am Main: Lang, 97-105.

- HALLIDAY, M.A.K. & Hasan, Ruqaiya (1976). *Cohesion in English*. London: Longman.
- LARSON, Mildred (1984). *Meaning Based Translation*. New York: University Press of America.
- LÓPEZ ARROYO, Belén (2001). *Estudio descriptivo comparado inglés-español de la representación del conocimiento en los abstracts de las Ciencias de la salud*. Valladolid: Universidad de Valladolid.
- LÓPEZ ARROYO, Belén & MÉNDEZ CENDÓN, Beatriz (2005). "An English/Spanish Contrastive Analysis of Phraseological and Rhetorical Devices in Medical Research Papers: A functional approach", To appear in *English for Specific Purposes*.
- LÓPEZ ARROYO, B & MÉNDEZ CENDÓN, Beatriz (2005). "Describing phraseological devices in medical abstracts: an English/Spanish contrastive analysis". To appear in *Meta*.
- MÉNDEZ CENDÓN, Beatriz & LÓPEZ ARROYO, Belén (2003). "Intralinguistic analysis of medical research papers and abstracts: Rhetorical and phraseological devices in scientific information", in *Terminology* 9:2, 247-268.
- NWOGU, Kevin (1997). The Medical Research Paper: Structure and Functions, in *English for Specific Purposes* 16: 2, 119-138.
- RABADÁN ÁLVAREZ, Rosa (2002). "Análisis contrastivo y traducción especializada inglés-español: el programa ACTRES", in Bravo Gozalo, José M^a ed. *Nuevas perspectivas de los Estudios de Traducción*. Valladolid: Universidad de Valladolid, 35-56.
- RABADÁN ÁLVAREZ, Rosa & FERNÁNDEZ NISTAL, Purificación (2002). *La traducción inglés-español: fundamentos, herramientas, aplicaciones*. León: Universidad de León.
- RUSSELL, Pamela (1988). *How to Write a Précis*. Ottawa: University of Ottawa Press.
- SAGER, Juan Carlos et alii (1980). *English Special Languages*. Wiesbaden: Bransletter.
- SALAGER-MEYER, Françoise (1991). "Medical English abstracts: How well are they structure?", in *Journal of The American Society of Science* 42(7), 528-531.
- SEIDLHOFER, B & WIDDOWSON, H (1997). "Coherence in Summary", in Bublitz, W. Lenk, U & Ventola, E eds. *Coherence in Spoken and Written Discourse*. Antwerp: John Benjamins, 205-219.
- SINCLAIR, John (1996). *EAGLES. Preliminary Recommendations on Corpus Typology*, en <<http://www.ilc.pi.cnr.it/EAGLES96/corpus typ/node20>. Swales, John (1990). *Genre Analysis*. Cambridge: CUP.
- SWALES, John (1990). *Genre Analysis*. Cambridge: CUP.

WILLIAMS, Ian (1999). "Results Sections of Medical Research Articles: Analysis of Rhetorical Categories for Pedagogical Purposes". *English for Specific Purposes*. 18(4), 347-367.